

Remarks

Claims 1-4, 6, 8 14 and 15 were rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement. It was stated on page 3 of the Office Action that "the specification does not describe what structural features or functional characteristics define said new functional class of delta-9 desaturases. . . while the claims are limited to sequences having the specified identities to SEQ ID NO:2 based on the Clustal alignment method, this method can have highly variable results depending on the parameters used, such as the Clustal size and gap length, for example."

The claims have been amended to recite that the Clustal method with default parameters (GAP PENALTY = 10, GAP LENGTH PENALTY = 10) was used. Support for this can be found in the specification on page 14 at lines 12-16. Thus, no new matter has been added.

Attention is kindly invited to page 14 at lines 17-28 which sets forth conserved sequence motifs for delta-9 desaturases:

It should be appreciated by one skilled in the art that genes encoding delta-9 desaturases can be identified in a number of ways. Conserved sequence motifs such as HSMPPEK corresponding to amino acids 67-73 of SEQ ID NO:2, LPLLKPVE corresponding to amino acids 89-96 of SEQ ID NO:2, EYFVVLVGDM corresponding to amino acids 132-141 of SEQ ID NO:2, EKTV corresponding to amino acids 205-208 of SEQ ID NO:2, GMDPGT corresponding to amino acids 215-220 of SEQ ID NO:2, NNPYLGFYTSFQERAT corresponding to amino acids 222-238 of SEQ ID NO:2, VLAR corresponding to amino acids 256-259 of SEQ ID NO:2, RIVE corresponding to amino acids 277-280 of SEQ ID NO:2, ITMPAHL corresponding to amino acids 302-308 of SEQ ID NO:2, or DFVCGLA corresponding to amino acids 364-370 of SEQ ID NO:2, can be used once several members of a diverged class are identified (as is the case in the present invention). . . .

Attention is also kindly invited to page 19 at lines 23-32 which describes the functionality of a delta-9 fatty acid desaturase:

This enzyme catalyzes the introduction of a double bond between carbon atoms 9 and 10 of stearoyl-ACP to form oleoyl-ACP. It can also convert stearoyl-CoA into oleoyl-CoA, albeit with reduced efficiency. Transfer of the nucleic acid fragment of the invention, or a part thereof that encodes a functional enzyme, with suitable regulatory sequences into a living cell will result in the production or over-production of stearoyl-ACP desaturase, which in the presence of an appropriate electron donor, such as ferredoxin, may result in an increased level of unsaturation in cellular lipids, including oil, in tissues when the enzyme is absent or rate-limiting.

Example 10 shows that suppression of the diverged delta-9 desaturase results in a high stearate phenotype. It is stated in Example 10 on page 45 at lines 20-21 that "the diverged delta-9 desaturase sequences do encode functional enzymes. . . ."

It is also stated in Example 10 that "[t]he conserved sequence elements KEIPDDYFVVLVGDMITEALPTYQVMLNT corresponding to positions 116-145 of SEQ ID NO:23; and DYADILEFLVGRWK corresponding to positions 324-337 of SEQ ID NO:23 from the Thompson patent (US Patent No. 5,723,595) that are claimed to be indicative of delta-9 desaturases are not conserved in the diverged sequences of the instant invention. Therefore, the sequences of the instant invention define a new functional class of plant delta-9 desaturase genes." In other words, the absence of the aforementioned sequence elements is also indicative of this diverged delta-9 sequence.

Accordingly, it is respectfully submitted that sufficient information is provided with respect to the structural and functional aspects of the claimed invention that one skilled in the art would appreciate that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In view of the above discussion, withdrawal of the rejection of the claims under 35 USC §112, first paragraph, is respectfully requested.

Claims 1-4, 6, 8 14 and 15 were rejected under 35 USC §112, first paragraph, as failing to comply with the enablement requirement.

It is respectfully submitted that in view of the above amendment to the claims and the foregoing discussion one of skill in the art would be able to make and/or use the claimed invention without engaging in undue experimentation.

Claims 1-3, 6 and 8 were rejected under 35 USC §102(a) as being anticipated by Swiderski et al. (Plant Sciences 151:75-83, 2000 in IDS, see alignment with sequence Accession AF139377, March 17, 2000), as stated in last office action. It is respectfully submitted that this ground of rejection is now rendered moot in view of the amendment of the claims to recite that the Clustal method of alignment with default parameters (GAP PENALTY = 10, GAP LENGTH PENALTY = 10) was used.

Accordingly, withdrawal of this ground of rejection is respectfully requested in view of the foregoing amendment and discussion.

Claim 1 was rejected under 35 USC §102 (b) as being anticipated by Sato et al. (Plant Physiol. 99:362-363, 1992) on the ground that the claims do not set forth the parameters for sequence comparisons using the Clustal alignment method.

It is respectfully submitted that the claims now recite the parameters for the Clustal alignment method. Accordingly, withdrawal of this ground of rejection is respectfully requested in view of the foregoing amendment and discussion.

In view of the foregoing, it is respectfully submitted that the claims are now in form for allowance which allowance is respectfully requested.

Please charge any fees or credit any overpayment associated with the filing of this Amendment including, but not limited to the Extension of Time, to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company).

Respectfully submitted,

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